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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/524,807	02/15/2005	Joseph J Keenan	BA9309USPCT	1657
7590 08/29/2007 David E Heiser E. I. Du Pont de Nemours and Company Legal Patent Records Center 4417 Lancaster Pike Wilmington, DE 19805			EXAMINER SULLIVAN, DANIELLE D	
			ART UNIT 1609	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/524,807

Applicant(s)

KEENAN ET AL.

Examiner

Danielle Sullivan

Art Unit

1609

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02/15/05.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 04/09/07 & 07/24/07.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-3, 9-11, and 15-17 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The factors considered in the written description requirement are (1) *level of skill and knowledge in the art*, (2) *partial structure*, (3) *physical and/or chemical properties*, (4) *functional characteristics alone or coupled with a known or disclosed correlation between structure and function*, and the (5) *method of making the claimed invention*.

While all of the factors have been considered, only those required for a *prima facie* case are set forth below.

The specification discloses conjugate acid pKa values for some common bases suitable for the invention. The specification discloses preferred bases as sodium carbonate, sodium hydrogen carbonate, sodium phosphate, sodium hydrogen phosphate, potassium carbonate, potassium hydrogen carbonate, potassium phosphate and potassium hydrogen phosphate, including the hydrated forms. However, examples only include the sulfonamide compositions as follows: thifensulfuron-methyl with sodium

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hydrogen phosphate, potassium phosphate or potassium carbonate, sulfometuron-methyl with sodium phosphate, bensulfuron-methyl with sodium carbonate and tribenuron-methyl with sodium carbonate.

The claims are drawn to a sulfonamide herbicide composition with base selected from inorganic base equivalents having conjugate acid pK_a s at least 2.1 units greater than the highest pK_a of the sulfonamide herbicide free acid component.

University of Rochester v. G.D. Searle & Co., 69 USPQ2d 1886 (Fed.Cir. 2004), states that the description must convey what the compound is, not just what it does (see page 1895). A review of the language of the claim indicates that these claims are drawn to the action of "50 equivalent % of base selected from inorganic base equivalents having conjugate pK_a s at least 2.1 units greater than the highest pK_a of the sulfonamide herbicide free acid component" rather than a particular structure. Therefore there are no specified bases disclosed in claims 1-3, 9-11, and 15-17 and the written description requirement is not satisfied.

Claims 1-3, 9-11 and 15-17 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for sodium carbonate, sodium hydrogen carbonate, sodium phosphate, sodium hydrogen phosphate, potassium carbonate, potassium hydrogen carbonate, potassium phosphate and potassium hydrogen phosphate, does not reasonably provide enablement for inorganic base equivalents having conjugate pK_a s at least 2.1 units greater than the highest pK_a of the sulfonamide herbicide free acid component. The specification does not enable any person skilled in

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the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims.

Attention is directed to *In re Wands*, 8 USPQ2d 1400 (CAFC 1988) at 1404 where the court set forth the eight factors to consider when assessing if a disclosure would have required undue experimentation. Citing *Ex parte Forman*, 230 USPQ 546 (BdApls 1986) at 547 the court recited eight factors:

- 1) the nature of the invention
- 2) the state of the prior art
- 3) the relative skill of those in the art
- 4) the predictability of the art
- 5) the breadth of the claims
- 6) the amount of direction or guidance provided
- 7) the presence or absence of working examples
- 8) the quantity of experimentation necessary

The instant specification fails to provide guidance that would allow the skilled artisan to practice the instant invention without resorting to undue experimentation, as discussed in the subsections set forth herein below.

The nature of the invention.

The claimed invention relates to a process of making a product comprising base selected from inorganic base equivalents having conjugate pK_a s at least 2.1 units greater than the highest pK_a of the sulfonamide herbicide free acid component.

The state of the prior art & predictability of the art

It is generally accepted that the pK_a values of commonly used conjugate acids of bases can be determined by standard methods and references. However, new compounds are always being discovered that may display basic characteristics and

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have various structures that require testing in order to determine their relative pK_a values.

The breadth of the claims

The recitation of inorganic base equivalents having conjugate acid pK_a at least 2.1 units greater than the highest pK_a of the sulfonamide indicates a plethora of structures. The bioavailability and efficacy of all such structures is not known.

The presence or absence of working examples

The specification provides detailed evaluation of thifensulfuron-methyl with sodium hydrogen phosphate, potassium phosphate or potassium carbonate, sulfometuron-methyl with sodium phosphate, bensulfuron-methyl with sodium carbonate and tribenuron-methyl with sodium carbonate. However, there is no indication of the efficacy or bioavailability of all inorganic base equivalents and sulfonamide combinations having the specified property.

The quantity of experimentation necessary & relative skill in the art

To determine how to prepare all sulfonamides and conjugate base combinations having this would require undue experimentation for one skilled in the art.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-3, 9-11 and 15-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 1-3, 9-11 and 15-17 one having ordinary skill in the art would not know how to determine what is meant by the term "at least about 50 equivalent % (and 75 equivalent % or 100 equivalent %) of base selected from inorganic base equivalents having conjugate pK_a s at least 2.1 units greater than the highest pK_a of the sulfonamide herbicide free acid component". The specification discloses the terms "equivalent % of base" and "base equivalents" as referring to the fact that some inorganic bases can provide more than one equivalent of basicity per mole (page 4, lines 5-7). However the units are not specified and one having ordinary skill in the art would be unable to discern what units are intended. Therefore, terms will be treated as meaning a base.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sandell et al. (US 5,474,971) in view of Riebel et al. (US 5,270,288) and Nonomura et al. (US 6,258,749).

Applicant's Invention

Applicant claims a process of preparing a paste-extruded sulfonamide herbicide, which comprises (2 to 90%) one or more of the free acid form of a sulfonamide herbicide (not salts), (0 to 95%) one or more additives, base and sufficient water to form a paste (page 2, line 34-page 3, line 11).

Determination of the scope and the content of the prior art

(MPEP 2141.01)

With respect to claims 1-16 of the instant application, Sandall et al. teaches process for preparing a rapidly disintegrating water-dispersible granular composition, comprising extruding a premix through a die or screen at elevated temperature without using any water (column 1, lines 37-38 and 56-59).

Sandall et al. teaches a process comprising extruding a dry premix comprising by weight (0.01-90%) of one or more active ingredients, (1-60%) one or more diluents, (0-30%) binders and two or more additives (ranging 0-80%) through a die to form granules (column 4, lines 25-45). The active ingredients includes sulfonamides, such as sulfometron-methyl (column 10, Table 1, Compound No. 63). Sandell et al. also teaches sodium and potassium carbonates as optional additives/gas generating agents (column 14, lines 39-40). Sandall et al. further teaches conventional methods for preparing water-dispersible granule compositions which includes the extrusion of a water-wet paste (column 3, lines 59-62).

Nonomura et al. teaches methods and formulations for treating plants and enhancing plant growth (abstract). The use of any polyacylpolysaccharide or polyalkylpolysaccharide and herbicides are disclosed as well (column 8, line 47; column 15, lines 30-33).

Reibel et al. teaches the combination of arylsulphonylureas with the sulfonamides thifensulfuron-methyl and tribenuron-methyl in formulated pastes (column 1, lines 6-16; column 4, line 32; column 5, lines 57 and 58).

Ascertainment of the difference between the prior art and the claims
(MPEP 2141.02)

Water is omitted from the process disclosed by Sandell et al., which discloses a method which does not require the addition of water to form the water-dispersible granule. However, water is a commonly used diluent in processes that require a wetter texture.

Sandell et al. does not specifically teach the use of the base sodium phosphate, however, bases are broadly taught as being additives within the process disclosed. Additionally, the addition of a saccharide is not disclosed by Sandell et al. However, Sandell et al. broadly discloses the addition of binders and additives within the process. Nonomura et al. does not teach a process of making a paste-extruded sulfonamide herbicide. However, saccharides are disclosed as being additives to formulations used to improve plant growth.

Also, the specific sulfonamides thifensulfuron-methyl and tribenuron-methyl are not specifically taught. However, various other sulfonamides are taught such as, bensulfuron methyl, chlorimuron ethyl and chlorsulfuron (See Table 1, Compounds 4, 9 and 11, column 6). Sandall et al. discloses that one or more active ingredients, including herbicides, may be used and Reibel et al. teaches that thifensulfuron-methyl and tribenuron-methyl may be used in combination with other herbicidally active ingredients.

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Additionally, a step of sifting the dried extrudate is not disclosed. However, sifting is a step commonly used in processes in order to remove excess dusts and products that are too small in size for retail purposes.

Finding of prima facie obviousness

Rationale and Motivation (MPEP 2142-2143)

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Sandell et al. to further include water in a process for preparing the paste-extruded sulfonamide. One would have been motivated to include water because adding water would help form a paste and if the composition extruded was too powdery adding water would improve its texture.

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Sandell et al. to further include potassium phosphate and sodium phosphate(dodecahydrate) in a process for preparing the paste-extruded sulfonamide. One would have been motivated to include potassium phosphate and sodium phosphate(dodecahydrate) because they are common bases used in chemical synthesis and preparation.

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Sandell et al. with Nonomura et al. to further include a saccharide. One would have been motivated to include a saccharide because saccharides are commonly used binders and dispersants and therefore constitute additives well known to one having ordinary skill in the art.

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It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Sandell et al. with Reibel et al. to further include a mixtures the sulfonamides thifensulfuron-methyl and tribenuron-methyl. One would have been motivated to include a thifensulfuron-methyl and tribenuron-methyl because they are sulfonamides and have a similar core structure and similar function to sulfometuron-methyl.

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Sandell et al. to further include the step of sifting the dried extrudate. One would have been motivated to include the step of sifting because it would remove excess powder to ensure the end product was properly formed and enable consistent weight of the final product before packaging.

Therefore, claims 1-16 are rejected.

Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sandell et al. (US 5,474,971).

Applicant's Invention

Applicant claims a sulfonamide herbicide composition (page 3, lines 12 and 13).

Determination of the scope and the content of the prior art

(MPEP 2141.01)

With respect to claims 16 of the instant application, Sandall et al. teaches a rapidly disintegrating water-dispersible granular composition (column 1, lines 37-38 and 56-59).

Sandall et al. teaches a process comprising extruding a dry premix comprising by weight (0.01-90%) of one or more active ingredients, including sulfonamides, such as sulfometron-methyl (column 10, Table 1, Compound No. 63). Also, (1-60%) one or more diluents, (0-30%) heat activated binders and two or more additives (ranging 0-80%) through a die to form granules (column 4, lines 25-45). Sandell et al. also teaches the bases sodium and potassium carbonates (column 14, lines 39-40).

Ascertainment of the difference between the prior art and the claims
(MPEP 2141.02)

Sandell does not teach the addition of water. However, water is a common diluent used in preparing herbicidal compositions and is often used to allow hard powdery substances to become malleable.

Finding of prima facie obviousness

Rationale and Motivation (MPEP 2142-2143)

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Sandell et al. to further include water. One would have been motivated to include water because adding water would help the composition to be extruded and formed by improving its texture.

Therefore, claims 16 is rejected.

Conclusion

No claims are allowed.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Ueda et al. (US 4,937,386).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Danielle Sullivan whose telephone number is (571) 270-3285. The examiner can normally be reached on 7:30 AM - 5:00 PM Mon-Thur EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Stucker can be reached on (571) 272-0911. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Danielle Sullivan
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